

AMENDMENTS TO THE CLAIMS

Claims

We claim:

1. (Currently amended) Device (V) for dynamic storage of objects (G) along a conveying section (F) between an input station (E) and an output station (A), comprising: ~~with~~ an endless, flexible conveying means ~~(1); (1)~~ which is variably subdivided into a conveying strand (1a) and an idle strand (1b), ~~where~~ the conveying strand and the idle strand each ~~present~~ having areas of variable ~~lengths; lengths~~ which move in opposite direction, ~~with~~ at least one carriage ~~(2); (2)~~ which can be moved in the plane of ~~conveyance; conveyance~~ for changing the storage capacity, ~~which the carriage presents~~ having a first deflection (3) for the conveying strand and a second deflection (4) for the idle strand; ~~as well as with a first drive device (7) for the conveying means in the area of the input station and a second drive device (8) for the conveying means in the area of the output station, where the first drive device and the second drive device can be being driven independently of each other with variable speed of conveyance; characterized in that and~~ the endless, flexible conveying means (1) is provided over its entire length at equal intervals with grippers (9) for the objects (G).

2. (Currently amended) Device according to Claim 1, ~~characterized in that~~ wherein the grippers (9) ~~are formed by include~~ elastic ~~(passive)~~ passive gripping pliers, which fix the object (G) on the conveying means (1).

3. (Currently amended) Device according to Claim 1, ~~characterized in that~~ wherein the grippers (9) ~~are formed from include~~ controllable ~~(active)~~ active gripping pliers, which fix the objects (G) on the conveying means (1).

4. (Currently amended) Device according to Claim 1, wherein one of Claims 1-3, ~~characterized in that~~ the grippers (9) are adapted ~~designed in such a manner that they to~~ grip the bottles (G) under a ~~thickening (T)~~ thickened region provided on the bottle head.

5. (Currently amended) Device according to Claim 1, wherein one of Claims 1-4, ~~characterized in that~~ the grippers (9) grip the objects (G) with positive lock ~~and optionally friction lock.~~

6. (Currently amended) Device according to Claim 1, wherein one of Claims 1-5, characterized in that the grippers (9) are arranged rigidly on the conveying means (1).

7. (Currently amended) Device according to Claim 1, wherein one of Claims 1-5, characterized in that the grippers (9) are arranged movably on the conveying means (1).

8. (Currently amended) Device according to Claim 7, ~~characterized in that, in each case, wherein~~ two or more grippers (9) are combined to form a structural unit (61), ~~which is with each structural unit (61)~~ arranged in a pivotable manner on the conveying means (1), ~~preferably on extension arms (62), where with~~ the connection line between the grippers (9) of a structural unit (61) in a first position is being substantially parallel to the conveying means (1) and in a second position being substantially transverse to the conveying means (1).

9. (Currently amended) Device according to Claim 8, ~~characterized in that wherein~~ the position of the structural unit (61) is controllable, where, in the area of the input station (E) and of the output station (A) with arc-shaped deflection (5, 6) of the conveying means (1), the connection lines are substantially parallel to the conveying means (1) and in the intermediate areas are substantially transverse to the conveying means (1).

10. (Currently amended) Device according to Claim 1, wherein one of Claims 1-9, characterized in that the conveying means (1) ~~presents~~ includes a link chain (12), ~~which is~~ equipped with rotatable guide rollers (10, 11, 25, 73), and which runs at least in some areas in at least one stationary guide rail (13, 14).

11. (Currently amended) Device according to Claim 10, ~~characterized in that wherein~~ the link chain (12), in the area where the carriage (2) moves, runs in ~~two~~ parallel, two stationary guide rails (13, 14).

12. (Currently amended) Device according to Claim 10, wherein one of Claims 10 or 11, characterized in that the parallel guide rails (13, 14), at least in the area in which the carriage (2) moves, present a curve-shaped, ~~particularly circular, oval, spiral or coil shape.~~

13. (Currently amended) Device according to Claim 12, wherein a ~~characterized in that the~~ middle axis of the curve-shape~~circular arc, oval, spiral or coil shape~~ is arranged one of substantially horizontally or substantially vertically.

14. (Currently amended) Device according to Claim 10, wherein ~~one of Claims 10-13, characterized in that~~ at least one guide roller (25, 73) is arranged movably on the respective chain link (23).

15. (Currently amended) Device according to Claim 14, ~~characterized in that~~ wherein the movable guide roller (25, 73) is impinged by a spring element ~~(27, 74), (27, 74)~~ which tends to keep the guide roller (25, 73) engaged with the stationary guide rail (13, 14).

16. (Currently amended) Device according to Claim 14, wherein ~~or 15,~~ ~~characterized in that~~ the movable guide roller (25, 73) is connected by articulation to the respective chain link (23) by means of a pivoted lever (26, 66).

17. (Currently amended) Device according to Claim 16, wherein ~~characterized in that~~ the pivoted lever (26, 66) can be fixed, in the position in which the movable guide roller (25, 74) is engaged with a stationary guide rail (13, 14), to the respective chain link (23) in such a manner that it can be detached.

18 (Currently amended) Device according to Claim 17, wherein ~~characterized in that~~ the pivoted lever (26, 66) can be reset by means of a control device (65, 79-85, 99) between the position in which the guide roller (25, 73) engages on a stationary guide rail (13, 14) and a position which is pivoted with respect to the former position.

19. (Currently amended) Device according to Claim 14, wherein ~~or 15,~~ ~~characterized in that~~ the movable guide roller (25) is mounted by means of at least one bolt (45) to the respective chain link (23) in such a manner that it can be shifted parallel to the rotation axis.

20. (Currently amended) Device according to Claim 14, wherein ~~one of Claims 14-19, characterized in that~~ the movable guide roller (25) is coupled to a thrust block (48) which can be impinged by the carriage (2).

21. (Currently amended) Device according to Claim 14, wherein ~~one of Claims 14-16, characterized in that~~ on the respective chain link (23) at least one double lever (66, 67) is mounted in a manner which allows pivoting, and wherein ~~where~~ the lever carries guide rollers (25, 73) at both ends.

22. (Currently amended) Device according to Claim 21, wherein ~~characterized in that~~ the pivotable double lever (66) can be fixed to the chain link (23) by means of a ratchet (92) arranged on the chain link (23).

23. (Currently amended) Device according to Claim 14 ~~one of Claims 14-22, characterized in that~~ wherein the carriage (2) ~~presents~~ has two guide arcs (38, 39), curved in opposite directions, for the link chain (12), where the end areas of the arcs correspond to the guide rails (13, 14) and engage or disengage the roller chain (12) with or from the guide rails (13, 14).

24. (Currently amended) Device according to Claim 23, wherein ~~characterized in that~~ the guide arcs present in their end areas one of slanted ramps (40) or ~~and/or~~ wedges (41) working, ~~which work~~ in cooperation with one of guide rollers (10, 11, 25, 73) or ~~and/or~~ thrust blocks (48).

25. (Currently amended) Device according to Claim 23, wherein ~~or 24, characterized in that~~ the respective two deflections (3, 4) or the ~~and/or~~ guide arcs (38, 39) are each arranged on a common frame (49) in a manner which allows pivoting and provided with track rollers (35) which engage on the guide rails (13, 14).

26. (Currently amended) Device according to Claim, wherein ~~one of Claims 1-25, characterized in that~~, on the idle strand (1b) of the flexible conveying means (1), at least one elastically prestressed tension element (68, 69) engages.

27. (Currently amended) Device according to Claim 1, wherein ~~one of Claims 1-26, characterized in that~~ the guide rails (13, 14) for the roller chain (12) in each case present two parallel round rods (72).

28. (Currently amended) Device (V) for dynamic storage of objects (G) along a conveying section (F) between an entry station (E) and an exit station (A), comprising with

an endless, flexible conveying means (1), ~~which is~~ variably subdivided into a conveying strand (1a) and an idle strand (1b), where the conveying strand and the idle strand each present areas with variable length, which can be moved in opposite directions, with at least one carriage (2), which can be moved in the plane of conveyance, for changing the storage capacity, ~~which the carriage presents having~~ a first deflection (3) for the conveying strand and a second deflection (4) for the idle strand, ~~as well as with~~ a first drive device (7) for the conveying means in the area of the input station and a second drive device (8) for the conveying means in the area of the output station, ~~where the first drive device and the second drive device can be being~~ driven independently of each other with variable speed of conveyance, ~~particularly according to Claim 1, characterized in that with~~ the conveying means (1) ~~presents having~~ a link chain (12), ~~which is~~ equipped with rotatable guide rollers (10, 11, 25, 73), ~~and which runs and running~~ at least in some areas in at least one stationary guide rail (13, 14), ~~where and with~~ at least one guide roller (25, 73) is arranged in a movable manner on the respective chain link (23).

29. (Currently amended) Device according to Claim 28, wherein ~~characterized in that~~ the movable guide roller (25, 73) is impinged by a spring element (27), ~~which tends tending~~ to keep the guide roller (25, 73) engaged with the stationary guide rail (13, 14).

30. (Currently amended) Device according to Claim 28, wherein ~~or 29, characterized in that~~ the movable guide roller (25, 73) is connected by articulation to the respective chain link (23) by means of a pivoted lever (26, 66).

31. (Currently amended) Device according to Claim 30, wherein ~~characterized in that~~ the pivoted lever (26, 66), in the position in which the movable guide roller (25, 73) is engaged with the stationary guide rail (13, 14), ~~can be~~ is adapted to be fixed in a detachable manner on the respective chain link (23), ~~preferably by means of a snap on connection (64) or a ratchet (92).~~

32. (Currently amended) Device according to Claim 31, wherein ~~characterized in that~~ the pivoted lever (26, 66) can be reset by means of a control device (65, 99) between the position in which the guide roller (25, 73) engages on a stationary guide rail (13, 14) and a position which can be pivoted with respect to the former position.

33. (Currently amended) Device according to Claim 28, wherein ~~or 29,~~
~~characterized in that~~ the movable guide roller (25) is mounted by means of at least one bolt
(45) to the respective chain link (23) in such a manner that it can be shifted parallel to the
rotation axis.

34. (Currently amended) Device according to Claim 28, wherein ~~one of Claims~~
~~28-33, characterized in that~~ the movable guide roller (25) is coupled with a thrust block (48)
which can be impinged by the carriage (2).

35. (Currently amended) Device according to Claim 28, wherein ~~one of Claims~~
~~28-32, characterized in that~~ on the respective chain link (23), two double levers (66, 67) can
be pivoted in a scissor-like manner like scissors, where with the levers ~~carry~~ carrying guide
rollers (25") on both ends.

36. (Currently amended) Device according to Claim 28, wherein ~~one of Claims~~
~~28-35, characterized in that~~ the carriage (2) has ~~presents~~ guide arcs (38, 39, 100), which are
curved in opposite directions, for the roller chain (12), ~~and whose~~ the guide arcs (38, 39, 100)
having end areas ~~correspond~~ corresponding with the guide rails (13, 14, 72) and ~~engage~~
engaging or ~~disengage~~ disengaging the optional roller chain (12) with or from the guide rails
(13, 14, 72).

37. (Currently amended) Device according to Claim 36, wherein ~~characterized in~~
~~that~~ the guide arcs ~~present~~ have in their end areas one of slanted ramps (40) or wedges (41)
~~and/or wedges (41),~~ which work in cooperation with one of guide rollers (10, 11, 25, 73), or
~~and/or~~ thrust blocks (48) ~~and/or (48),~~ or ratchets (92).

38. (Currently amended) Device according to Claim 36, wherein ~~or 37,~~
~~characterized in that~~ the two deflections (3, 4) or ~~and/or~~ guide arcs (38, 39) are each arranged
on a common frame (49) in such a manner that they can be pivoted and provided with track
rollers (35) which engage on the guide rails (13, 14).

39. (Currently amended) Device according to Claim 28, wherein ~~one of Claims~~
~~28-38, characterized in that~~ at least one elastically prestressed tension element (68, 69)
engages on the ~~end piece~~ idle strand (1b) of the flexible conveying means (1).

40. (Currently amended) Device according to Claim 18, wherein ~~one of Claims 18-27, characterized in that~~ the guide rails (13, 14) for the roller chain (12) each present two parallel round rods (72).

41. (Currently amended) Link ~~chain, chain~~ equipped with rotatable guide rollers, particularly for a device for dynamic storage of objects according to Claim 1, ~~characterized in that comprising~~ at least one guide roller (25, 73) is arranged on the respective chain link (23) in such a manner that it can be moved.

42. (Currently amended) Link chain according to Claim 41, wherein ~~characterized in that~~ the movable guide roller (25, 73) is impinged by a spring element (27, 74).

43. (Currently amended) Link chain according to Claim 41, wherein ~~or 42, characterized in that~~ the movable guide roller (25, 74) is attached by articulation to the respective chain link (23) by means of a pivoted lever (26, 66).

44. (Currently amended) Link chain according to Claim 43, wherein ~~characterized in that~~ the pivoted lever (26, 66), in the position in which the movable guide roller (25, 73) is engaged with a stationary guide rail (13, 14), can be fixed to the respective chain link (23) in a detachable ~~manner which allows detachment~~.

45. (Currently amended) Link chain according to Claim 41, wherein ~~or 42, characterized in that~~ the movable guide roller (25) is mounted by means of at least one bolt (45) to the respective chain link ~~(23), (23)~~ in such a manner that it can be shifted parallel to the rotation axis.

46. (Currently amended) Link chain according to Claim 41, wherein ~~one of Claims 41-45, characterized in that~~ the movable guide roller (25) is coupled with a thrust block (48).

47. (Currently amended) Link chain according to Claim 41 wherein, ~~one of Claims 41-44, characterized in that,~~ on the respective chain link (23), at least one double lever (66, 67) is mounted in a manner which allows pivoting, where the lever carries guide rollers (25, 73) on both ends.

48. (Currently amended) Link chain according to Claim 43, wherein one of one of
~~Claims 43-47, characterized in that~~ the pivoted lever (26) or double lever (66) can be attached
by means of one of a snap-on connection (64) or a ratchet (92) to the respective chain link
(23) in a detachable manner ~~which allows detachment~~.
49. (New) Device according to Claim 1, wherein the grippers (9) grip the objects (G)
with a friction lock.
50. (New) Device according to Claim 8, wherein the structural unit (61) is arranged in a
pivotal manner on extension arms (62).
51. (New) Device according to Claim 12, wherein the curve shape is one of circular,
oval, spiral or coil shape.
52. (New) Device according to Claim 31, wherein the pivoted lever (26, 66) is fixed in a
detachable manner on the respective chain link (23) by means of one of a snap-on connection
(64) or a ratchet (92).